UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 1
1 CONGRESS STREET, SUITE 1100
BOSTON, MASSACHUSETTS 02114-2023

February 22, 2005

Curtis Frye
U.S. Department of the Navy
Naval Facilities Engineering Command
Northern Division
10 Industrial Highway
Code 1823, Mail Stop 82
Lester, PA 19113-2090

Re: Excavation Constructability Review of the Old Fire Fighting Training Area

Dear Mr. Frye:

EPA reviewed the *OFFTA Excavation Constructability Review* and the associated Excel spreadsheets provided for Alternatives A1, A2, A3, B1, B2, B3, and C for soil removal at the Old Fire Fighting Training Area, Naval Station Newport, Newport, RI. The documents were received via e-mail dated December 27, 2004. Detailed comments are provided in Attachment A.

Subsequent to our initial review, the Navy submitted a letter on January 11, 2005 concerning residual risk for each of the alternatives; a conference call was held on January 13, 2005; supplemental conceptual design and costing information was provided by the Navy on January 26, 2005; a meeting was held on February 3, 2005; final minutes for the January 13, 2005 conference call were submitted by the Navy on February 9, 2005; the Navy's responses to risk assessment questions raised during the February 3, 2005 meeting were submitted by the Navy on February 11, 2005; and additional information was provided on February 14, 2005 by the Navy regarding low groundwater elevation calculations.

The approach for this remediation needs to consider the geology of the site; the depth and lateral extent of the contamination, especially organic contamination; and the groundwater elevation. A geologic approach may be a combination of the "A" and "B" alternatives wherein sheet piles could be used judiciously to achieve the appropriate excavation depth but not used universally as in the current "A" alternatives or omitted entirely as the current "B" alternatives require. EPA believes that the geology at the site (bedrock and till) can be used advantageously to allow the excavation to go deeper than three feet below the water table in some areas without the use of sheet piles or with only limited use of sheet piles. Therefore, EPA prefers to have the site partitioned into excavation areas based on consideration of the local geology so that sheet piling could be avoided or minimized in some areas rather than forcing the remediation to work within the constraints of the existing grid network. For example, there is a bedrock ridge that runs from SB426 to SB425 to SB413 to SB412 to SB411. This ridge would obviate the need for sheet piling along this route and greatly reduce the sheet pile requirement for seaward excavation. In the western half of the site, dense till exists at or near the water table in grids B-5 and C-5 and

this till is within 2 to 3 feet of the water table in grids B-6 and C-6. Therefore, the excavation could occur in these areas without the need for sheet piling, or with only a minimal amount of sheet piling. Grid B-4 has a thick till layer that will accommodate sheet piles without the need to damage the piles by driving them to bedrock. Grid B-2 also has a till layer that is less thick than B-4 but would also facilitate pile driving with limited damage to piles. In summary, EPA believes that a more critical consideration of the site geology would allow a better remediation to be performed at a substantially lower cost than the Navy has currently estimated. Further discussion of this approach is warranted before selecting a preferred alternative.

I look forward to working with you and the Rhode Island Department of Environmental Management toward the cleanup of the Old Fire Fighting Training Area. Please do not hesitate to contact me at (617) 918-1385 should you have any questions.

Sincerely,

Kymberlee Keckler, Remedial Project Manager
Federal Facilities Superfund Section

Attachment

cc: Bryan Olson, USEPA, Boston, MA
Paul Kulpa, RIDEM, Providence, RI
Cornelia Mueller, NETC, Newport, RI
Jennifer Stump, Gannet Fleming, Harrisburg, PA

ATTACHMENT A

Page	Comment
pp. 1 & 2	The Navy based the excavation depth for the "A" Alternatives on the need to excavate one sampling interval (2 feet) deeper than the deepest contaminated sample interval and to collect confirmation samples at the completion of the excavation. However, the Navy has not used this same protocol to estimate the excavation depths for the "B" Alternatives although information sampling of the excavation is proposed (but it will not be used to drive the excavation). EPA believes there is a substantial chance with the "B" Alternatives that significant contamination could be left in place because excavation is not proposed to go deeper than the previously detected concentration even in areas where the contaminant concentration is very significant. In order to reduce the potential for leaving significant contamination in place, EPA requests that the "B" Alternatives also include the requirement to excavate one sampling interval (2 feet) deeper than the deepest contaminated sample, up to the agreed-upon threshold depth for the "B" Alternatives, and that confirmation samples be collected upon completion of the excavation. EPA cannot eliminate the need for deeper excavations in areas where the "B" Alternatives would leave significant contamination in place based on the confirmation sampling results. EPA also notes that since the "B" Alternatives will be performed in the wet, complete removal of previously-detected contamination in the excavation zone will be difficult to achieve. It is very likely that over-excavation will be required to effectively remove contamination in the original excavation zone, without consideration to what contamination might exist below that. The subject submittal does not specifically address the removal of below grade concrete structures; however, the Navy confirmed during our January 13, 2005 teleconference that the scope of work to be implemented will include removal of below grade concrete structures. Therefore, EPA would like the Navy to include that work description in subsequent submittals (*i.e.*, work plan). No additional sediment monitoring will be possible at locations between the shoreline and mean low water after construction of the revetment begins. Please clarify how much sediment will be removed as part of the revetment placement.
Cost	In general, the costs presented appear to be very conservative which, if true, magnifies the cost difference between alternatives, making the more expensive alternatives appear more unfavorable than they probably are. One example, based on cost estimating guidance presented in R. S. Means, relates to the life of the sheet piles. Means states "...A reasonable estimate of the life of steel sheet piling

is 10 uses with up to 125 uses possible if a vibratory hammer is used...." While it is recognized that the sheet pile life is site related, the Navy's cost estimate, which is based on using a vibratory hammer, has reportedly assumed a total of three uses for each pile. Another example is the cost per gallon used for calculating the cost for dewatering. This costing method does not accurately reflect the cost for dewatering, which as proposed, will have a large fixed cost component and a variable cost component that is significantly smaller than the $1 per gallon cost used in the estimate. Other cost concerns for the "A" Alternatives have been expressed during our meetings such as the unit cost for driving, removing, and reusing piles; the volume of dewatering assumed to be necessary; and the applicability and consistency of the assumptions inherent in the cost estimate.

EPA appreciates that the Navy's cost estimate is based on a quotation from a pile driving vendor; however, a cost estimate is only as good as the assumptions upon which it is based. It is not apparent based on available information that the cost estimate assumptions are consistent with accepted cost estimating practice and therefore the resulting cost estimate is questionable. Any additional cost-related information that the Navy can provide to facilitate the selection of a preferred alternative would be appreciated.

The cost estimates do not include any allowances for managing the site if contaminants are left in place at concentrations exceeding the cleanup concentrations. Consequently, the cost estimates do not reflect the true difference in cost and are not appropriate for comparing the costs between alternatives. Good decision making requires that these long-term costs be considered. If contaminants are left in place in excess of the cleanup concentrations, unrestricted use of the site will not be allowed and risk management measures will need to be implemented.

Alternative C The target compounds have not been identified for Alternative C. However, for this alternative to be considered, removal of all soil above the water table with contaminants exceeding the cleanup goals should be provided. This is what EPA understood was required for this alternative. However, based on closer review of the proposed excavation depths presented in Figure 2, it appears that this is not what the Navy proposes for Alternative C. Please clarify what the Navy used as target compounds for Alternative C and explain why Figure 2 shows excavation depths that leave contamination in place above the water table (as compared to the latest revisions of Figures 4-1 through 4-5 of the PDI). Since Alternative C is also the baseline for all other alternatives, the corrections required for Alternative C need to be carried through to all other alternatives. Therefore, as a minimum for every alternative, excavation should extend to the water table for every grid that has an exceedance of a contaminant of concern in the soil above the water table.

Figures 1 & 2 While it is understood that the subject submittal is intended to be a conceptual presentation, the revised Figure 1 depicts the revetment and toe protection extending 20 to 25 feet beyond the mean low water elevation. If that were done, the eelgrass beds would be impacted, which is not acceptable. Also, a buffer will be required between the silt curtain, which will be required during construction, and the eelgrass beds. In future submittals please also show the conceptual revetment in plan view (*i.e.*, edit or replace Figure 2 to show the eelgrass beds and the full seaward extent of the revetment and the silt curtain).

Figures 2-8 EPA's review of the excavation plans as presented in Figures 2 through 8 of the Navy's *OFFTA Excavation Constructability Review* has identified a number of apparent errors as compared with the information presented in the latest revisions of the PDI figures. EPA requests that the Navy review the detailed information in each grid for each alternative to confirm and/or correct the information presented. For example, EPA's review has identified the following errors:

a. For grids A-8, A-9, and at the intersection of grids A-10 and B-10 the TPH concentration exceeds 500 ppm below the water table yet neither Alternative A-1 nor B-1 includes excavation below the water table (*see* Figures 3 and 6 of the Constructability Review document). In fact, it appears that grids A-8 and A-9 are probably the two most TPH-contaminated grids at the site. Please explain why excavation below the water table was not proposed for these four grids.

b. There are several anomalous values presented in the grids for the bottom of excavation and groundwater elevations. EPA requests that the Navy review this information in all the grids for all alternatives. For example, for Alternative B-1 the excavation depth proposed for grids B-5, B-6, and B-9 is not sufficient to remove organic contamination above the PRGs that is less than three feet below the water table. Also for Alternative B-1, the bottom of excavation elevation for grid B-3 is not consistent with other alternatives, including A-1. For Alternative C (Figure 2) please correct the bottom of excavation elevation in grids A-8, A-9, B-10, C-8, and C-11 or explain why they are correct. (Also, *see* General Comment #3 regarding Alternative B and General Comment #6 regarding Alternative C.) *See also* the comments below.

Groundwater Regarding the low groundwater elevation submittal, EPA notes the following:

a. The second assumption contains a typo; 2.3 feet should be 2.03 feet.

b. The first sentence of the analysis refers to a tidal study of 8/27/90 through 8/30/90 whereas the second point under the "Given" information refers to a tidal study of 7/12/1994. Are both of these references correct?

Please clarify how the Navy will use this low groundwater elevation data to modify the Excavation Constructability Review submittal.

Figure 6 EPA noted several anomalies in the bottom of excavation elevations as compared to the data presented in the PDI figures. Please review and revise these values as appropriate.

If the general protocol described in the Navy response, third sentence, to EPA review comment three on the residual risk evaluation has been implemented in developing the alternatives, then it appears there is an error in Figure 6. For example, in grid cell A-8 there are several exploration locations, including SB403, SB428, SB429, TP-15, MW102, and B-13. SB403, SB428, SB429, and MW102 all have PAH contaminants at concentrations that exceed the PRGs at depths below the water table. TP-15 also identified PAHs but this exploration only extended to a depth of approximately 0.5 feet above the water table. B-13 had no PRG exceedances but only extended to approximately 0.5 feet above the water table. Figure 6, which presents Alternative A-1, shows that the bottom of the excavation will be at elevation 2.5 and that the water table is at elevation 2.1. Therefore, Figure 6 indicates that PAH contaminants will be left in place based on the boring data. This would not occur if the average depth of the samples were used as the response appears to suggest. Please indicate if this is a mistake in Figure 6 or clarify how the proposed excavation depth could be correct given the data.

Regarding the second sentence of the response, review of grid cell B-5 indicates that a single exploration, SB408, exists for this cell. PAH contamination was found at concentrations in excess of the PRGs at the lowest sampling interval, which extended to a depth of 0 feet MSL, which is below the water table elevation of approximately 2.7 feet MSL. However, Figure 6 shows that the bottom of the excavation will be at -2.0 feet MSL for cell B-5, which is 2 feet below the bottom of the sample interval that exceeds the PRG. Please clarify this inconsistency.

EPA has not searched for other examples, but a cursory review of the data reveals that there are inconsistencies with the details of the alternatives that should be corrected.

Figure 7 Several apparently incorrect excavation depths are shown in this figure. Please confirm or correct the values in all grids. EPA noted apparently incorrect values in grids A10, B3, C3, and C7. Figure 4 (Alternative B-2) shows the following excavation elevations: A10=2.8, B3=2.1, C3=2.2, and C7=1.3; therefore the excavation elevations for Plan A-2 must be no more than that.

Figure 8 Grid C2 must be excavated down much deeper than -1.0 in this alternative to capture contamination.

Figure 9 There would likely be significant benefit in adding a third granulated activated carbon (GAC) unit to extend the life of the primary unit. With only two GAC units, the primary would likely have to be replaced when contaminants are detected in the effluent from this unit. However, with three units, the primary would not have to be replaced until contaminants were detected in the effluent from the second unit. This would increase the capacity of the primary unit before a change-out is required. It may also make discharge to surface water more acceptable to the State.